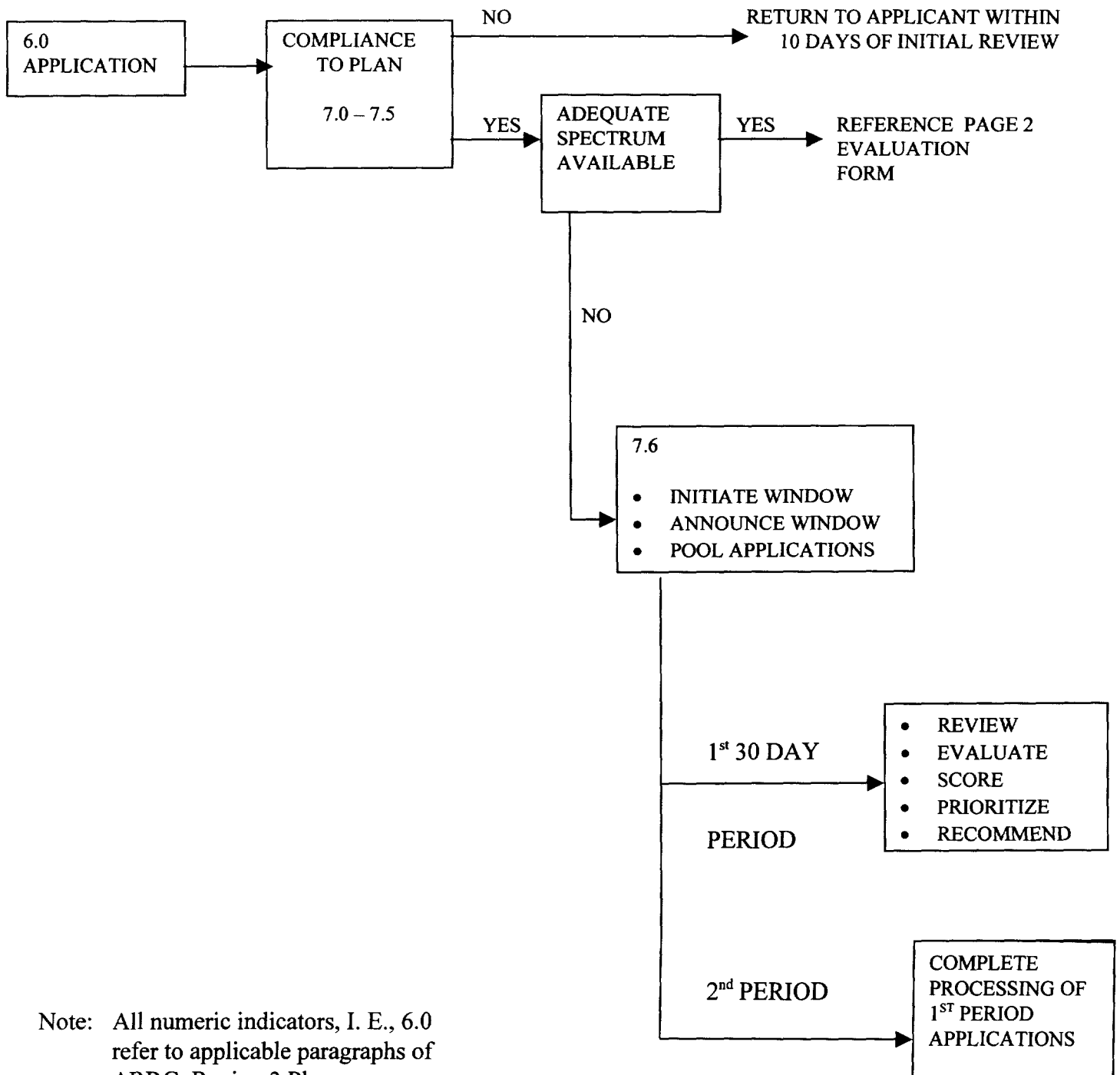


APPENDIX III - NPSPAC APPLICATION PROCEDURE

800 MHz NPSPAC APPLICATION PROCEDURE



Note: All numeric indicators, I. E., 6.0 refer to applicable paragraphs of ARRC, Region 3 Plan.

EVALUATION FORM

Agency: _____

Date Received: _____

Date Reviewed: _____

Date Approved: _____

ARRC Chairperson: _____

EVALUATION FORM PAGE 2

RECOMMENDED APPROVAL TO ARRC:

- ☐ Regional inter-operability concur (4.0)
- ☐ Eligible for Arizona Channel 6 Common Calling Channel (4.5)
- ☐ Inter-regional inter-operability concur (5.0)
- ☐ Applicable coordination forms (6.0, 1)

SYSTEM DESIGN INFORMATION (6.0, 2)

- ☐ Antenna height and power (9.1)
- ☐ Definition of service area (9.2)
- ☐ Calculation of service area (9.3)
- ☐ Service area map (9.5)
- ☐ Control station requirements (9.6)
- ☐ Adjacent channel design (9.8)
- ☐ Trunking requirements (9.10)
- ☐ System loading requirements (9.11)

SYSTEM ENGINEERING EXHIBIT (9.12)

- ☐ Transmit output power
- ☐ I/M equipment and losses
- ☐ Transmission lines and losses
- ☐ Antenna model and gain
- ☐ Ground elevation above MSL
- ☐ Antenna centerline AGL
- ☐ HAAT of antenna centerline
- ☐ Effective radiated power
- ☐ Receiver only locations
- ☐ CTCSS coding information
- ☐ Cellular telephone use (9.14)
- ☐ Frequency allocation (9.15)
- ☐ Funding statement (6.0, 3)
- ☐ Proposed implementation schedule (6.0, 4)
- ☐ Justification of number of channels (6.0, 5)
- ☐ Existing frequency statement (6.0, 6)
- ☐ Statement of understanding (6.0, 7)
- ☐ Frequency re-use/givebacks (6.0, 8)
- ☐ Co-channel interference (App V)
- ☐ Adjacent-channel interference (App V)

WHEN LICENSED:

- ☐ Track construction
- ☐ License data and call
- ☐ RFP deadline (12 mo)
- ☐ RFP award (12 mo)
- ☐ System turn-on
- ☐ System acceptance
- ☐ Channel loading (3-5 yrs)

APPENDIX IV - FREQUENCY ALLOCATION LIST

Revised 2/01

Channel	800 MHz	800 MHz	800 MHz	800 MHz
601	821.0125 MHz	866.0125 MHz	NTL. Calling	NTL. Calling
602	821.025 MHz	866.025 MHz	Arizona, Navajo	Yuma, Pima Co.
603	821.0500 MHz	866.0500 MHz	Guard Band	Guard Band
604	821.0625 MHz	866.0625 MHz	Maricopa Co.	
605	821.0750 MHz	866.0750 MHz	Maricopa Co.	Tucson, Pima Co.
606	821.0875 MHz	866.0875 MHz	Guard Band	Douglas, Flagstaff, Nogales
607	821.1000 MHz	866.1000 MHz	CAP	CAP
608	821.1125 MHz	866.1125 MHz	Guard Band	Douglas, Sierra Vista, Navajo
609	821.1250 MHz	866.1250 MHz	Maricopa Co.	
610	821.1375 MHz	866.1375 MHz	Maricopa Co.	Prescott, Yuma City, Tucson, Pima Co.
611	821.1500 MHz	866.1500 MHz	Maricopa Co.	Cochise Co.
612	821.1625 MHz	866.1625 MHz	Maricopa Co.	Tucson, Cochise Co.
613	821.1750 MHz	866.1750 MHz	Maricopa Co.	Santa Cruz, Lake Havasu
614	821.1875 MHz	866.1875 MHz	Maricopa Co.	Tucson
615	821.2000 MHz	866.2000 MHz	Maricopa Co.	
616	821.2125 MHz	866.2125 MHz	Maricopa Co.	Tucson
617	821.2250 MHz	866.2250 MHz	Maricopa Co.	
618	821.2375 MHz	866.2375 MHz	Maricopa Co.	Tucson
619	821.2500 MHz	866.2500 MHz	Maricopa Co.	
620	821.2625 MHz	866.2625 MHz	Maricopa Co.	Greenlee Co.
621	821.2750 MHz	866.2750 MHz	Maricopa Co.	
622	821.2875 MHz	866.2875 MHz	Maricopa Co.	Apache
623	821.3000 MHz	866.3000 MHz	Maricopa Co.	
624	821.3125 MHz	866.3125 MHz	Maricopa Co. Note 2	Tucson, Pima Co.
625	821.3250 MHz	866.3250 MHz	Maricopa Co.	
626	821.3375 MHz	866.3375 MHz	Maricopa Co.	Douglas
627	821.3500 MHz	866.3500 MHz	Maricopa Co.	
628	821.3625 MHz	866.3625 MHz	Maricopa Co.	Douglas, Navajo
629	821.3750 MHz	866.3750 MHz	Guard Band	
630	821.3875 MHz	866.3875 MHz	CAP	CAP
631	821.4000 MHz	866.4000 MHz	Guard Band	
632	821.4125 MHz	866.4125 MHz	CAP	CAP
633	821.4250 MHz	866.4250 MHz	Guard Band	
634	821.4375 MHz	866.4375 MHz	Maricopa Co.	Tucson
635	821.4500 MHz	866.4500 MHz	Maricopa Co.	Prescott
636	821.4625 MHz	866.4625 MHz	Maricopa Co. Note 1	Guard Band
637	821.4750 MHz	866.4750 MHz	Guard Band	State of Arizona
638	821.4875 MHz	866.4875 MHz	State of Arizona	Guard Band
639	821.5125 MHz	866.5125 MHz	TAC - 2	TAC - 2
640	821.5375 MHz	866.5375 MHz	State of Arizona	State of Arizona
641	821.5500 MHz	866.5500 MHz	Guard Band	Guard Band
642	821.5625 MHz	866.5625 MHz	Maricopa Co.	Tucson

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643	821.5750 MHz	866.5750 MHz	Maricopa Co.	Mohave
644	821.5875 MHz	866.5875 MHz	Maricopa Co.	Tucson
645	821.6000 MHz	866.6000 MHz	Maricopa Co.	Coconino Co.
646	821.6125 MHz	866.6125 MHz	Maricopa Co.	
647	821.6250 MHz	866.6250 MHz	Maricopa Co. Note 2	
648	821.6375 MHz	866.6375 MHz	Maricopa Co.	Douglas
649	821.6500 MHz	866.6500 MHz	Maricopa Co.	Apache
650	821.6625 MHz	866.6625 MHz	Maricopa Co.	Cochise
651	821.6750 MHz	866.6750 MHz	Maricopa Co.	Navajo, Tucson, Pima Co.
652	821.6875 MHz	866.6875 MHz	Maricopa Co.	
653	821.7000 MHz	866.7000 MHz	Maricopa Co.	Graham
654	821.7125 MHz	866.7125 MHz	Maricopa Co.	
655	821.7250 MHz	866.7250 MHz	Maricopa Co.	Mohave
656	821.7375 MHz	866.7375 MHz	Maricopa Co.	
657	821.7500 MHz	866.7500 MHz	Maricopa Co.	
658	821.7625 MHz	866.7625 MHz	Maricopa Co.	
659	821.7750 MHz	866.7750 MHz	Maricopa Co.	
660	821.7875 MHz	866.7875 MHz	Maricopa Co.	
661	821.8000 MHz	866.8000 MHz	Maricopa Co.	
662	821.8125 MHz	866.8125 MHz	Maricopa Co.	Tucson
663	821.8250 MHz	866.8250 MHz	Maricopa Co.	
664	821.8375 MHz	866.8375 MHz	Maricopa Co.	
665	821.8500 MHz	866.8500 MHz	Maricopa Co.	La Paz
666	821.8625 MHz	866.8625 MHz	Maricopa Co.	Tucson
667	821.8750 MHz	866.8750 MHz	Guard Band	
668	821.8875 MHz	866.8875 MHz	CAP	CAP
669	821.9000 MHz	866.9000 MHz	Guard Band	
670	821.9125 MHz	866.9125 MHz	Phoenix, Mesa Note 3	
671	821.9250 MHz	866.9250 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
672	821.9375 MHz	866.9375 MHz	Phoenix, Mesa Note 3	
673	821.9500 MHz	866.9500 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
674	821.9625 MHz	866.9625 MHz	Phoenix, Mesa Note 3	
675	821.9750 MHz	866.9750 MHz	Phoenix, Mesa Note 3	
676	821.9875 MHz	866.9875 MHz	Phoenix, Mesa Note 3	
677	822.0125 MHz	867.0125 MHz	TAC - 3	TAC - 3
678	822.0375 MHz	867.0375 MHz	Phoenix, Mesa Note 3	
679	822.0500 MHz	867.0500 MHz	Phoenix, Mesa Note 3	
680	822.0625 MHz	867.0625 MHz	Phoenix, Mesa Note 3	
681	822.0750 MHz	867.0750 MHz	Phoenix, Mesa Note 3	
682	822.0875 MHz	867.0875 MHz	Phoenix, Mesa Note 3	
683	822.1000 MHz	867.1000 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
684	822.1125 MHz	867.1125 MHz	Phoenix, Mesa Note 3	
685	822.1250 MHz	867.1250 MHz	Phoenix, Mesa Note 3	Yavapai, Tucson, Pima Co.
686	822.1375 MHz	867.1375 MHz	Phoenix, Mesa Note 3	
687	822.1500 MHz	867.1500 MHz	Phoenix, Mesa Note 3	
688	822.1625 MHz	867.1625 MHz	Phoenix, Mesa Note 3	

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689	822.1750 MHz	867.1750 MHz	Phoenix, Mesa Note 3	
690	822.1875 MHz	867.1875 MHz		
691	822.2000 MHz	867.2000 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
692	822.2125 MHz	867.2125 MHz		
693	822.2250 MHz	867.2250 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
694	822.2375 MHz	867.2375 MHz		
695	822.2500 MHz	867.2500 MHz	Phoenix, Mesa Note 3	
696	822.2625 MHz	867.2625 MHz		
697	822.2750 MHz	867.2750 MHz	Phoenix, Mesa Note 3	
698	822.2875 MHz	867.2875 MHz		
699	822.3000 MHz	867.3000 MHz	Phoenix, Mesa Note 3	
700	822.3125 MHz	867.3125 MHz		
701	822.3250 MHz	867.3250 MHz	Phoenix, Mesa Note 3	
702	822.3375 MHz	867.3375 MHz		
703	822.3500 MHz	867.3500 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
704	822.3625 MHz	867.3625 MHz		
705	822.3750 MHz	867.3750 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
706	822.3875 MHz	867.3875 MHz		
707	822.4000 MHz	867.4000 MHz	Phoenix, Mesa Note 3	
708	822.4125 MHz	867.4125 MHz		
709	822.4250 MHz	867.4250 MHz	Phoenix, Mesa Note 3	
710	822.4375 MHz	867.4375 MHz		
711	822.4500 MHz	867.4500 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
712	822.4625 MHz	867.4625 MHz	Phoenix, Mesa Note 1, 3	Guard Band
713	822.4750 MHz	867.4750 MHz	Guard Band	State of Arizona
714	822.4875 MHz	867.4875 MHz	State of Arizona	Guard Band
715	822.5125 MHz	867.5125 MHz	TAC - 4	TAC - 4
716	822.5375 MHz	867.5375 MHz	State of Arizona	
717	822.5500 MHz	867.5500 MHz	Guard Band	
718	822.5625 MHz	867.5625 MHz	CAP	CAP
719	822.5750 MHz	867.5750 MHz	Guard Band	
720	822.5875 MHz	867.5875 MHz		
721	822.6000 MHz	867.6000 MHz	Phoenix, Mesa Note 3	
722	822.6125 MHz	867.6125 MHz		
723	822.6250 MHz	867.6250 MHz	Phoenix, Mesa Note 3	
724	822.6375 MHz	867.6375 MHz		
725	822.6500 MHz	867.6500 MHz	Phoenix, Mesa Note 3	
726	822.6625 MHz	867.6625 MHz		
727	822.6750 MHz	867.6750 MHz	Phoenix, Mesa Note 3	
728	822.6875 MHz	867.6875 MHz		
729	822.7000 MHz	867.7000 MHz	Phoenix, Mesa Note 3	
730	822.7125 MHz	867.7125 MHz		
731	822.7250 MHz	867.7250 MHz	Phoenix, Mesa Note 3	
732	822.7375 MHz	867.7375 MHz		
733	822.7500 MHz	867.7500 MHz	Phoenix, Mesa Note 3	
734	822.7625 MHz	867.7625 MHz		

735	822.7750 MHz	867.7750 MHz	Phoenix, Mesa Note 3	
736				
737	822.8000 MHz	867.8000 MHz	Phoenix, Mesa Note 3	
738				
739	822.8250 MHz	867.8250 MHz	Phoenix, Mesa Note 3	
740				
741	822.8500 MHz	867.8500 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
742				
743	822.8750 MHz	867.8750 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
744				
745	822.9000 MHz	867.9000 MHz	Phoenix, Mesa Note 3	
746				
747	822.9250 MHz	867.9250 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
748				
749	822.9500 MHz	867.9500 MHz	Phoenix, Mesa Note 3	
750	822.9625 MHz	867.9625 MHz	Phoenix, Mesa Note 3	Mohave
751	822.9750 MHz	867.9750 MHz	Phoenix, Mesa Note 3	
752				
753	823.0125 MHz	868.0125 MHz	TAC - 5	TAC - 5
754				
755	823.0375 MHz	868.0375 MHz	Phoenix, Mesa Note 3	
756				
757	823.0500 MHz	868.0500 MHz	Phoenix, Mesa Note 3	
758				
759	823.0625 MHz	868.0625 MHz	Phoenix, Mesa Note 3	
760				
761	823.0750 MHz	868.0750 MHz	Phoenix, Mesa Note 3	
762				
763	823.0875 MHz	868.0875 MHz	Phoenix, Mesa Note 3	
764				
765	823.1000 MHz	868.1000 MHz	Guard Band	
766				
767	823.1125 MHz	868.1125 MHz	CAP	CAP
768				
769	823.1250 MHz	868.1250 MHz	Guard Band	
770				
771	823.1375 MHz	868.1375 MHz	Phoenix, Mesa Note 3	
772				
773	823.1500 MHz	868.1500 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
774				
775	823.1625 MHz	868.1625 MHz	Phoenix, Mesa Note 3	
776				
777	823.1750 MHz	868.1750 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
778				
779	823.1875 MHz	868.1875 MHz	Phoenix, Mesa Note 3	
780				
781	823.2000 MHz	868.2000 MHz	Phoenix, Mesa Note 2, 3	Tucson, Pima Co.
782				
783	823.2125 MHz	868.2125 MHz	Phoenix, Mesa Note 3	
784				
785	823.2250 MHz	868.2250 MHz	Phoenix, Mesa Note 3	
786				
787	823.2375 MHz	868.2375 MHz	Phoenix, Mesa Note 3	
788				
789	823.2500 MHz	868.2500 MHz	Phoenix, Mesa Note 3	Cochise
790				
791	823.2625 MHz	868.2625 MHz	Phoenix, Mesa Note 3	
792				
793	823.2750 MHz	868.2750 MHz	Phoenix, Mesa Note 3	Mohave
794				
795	823.2875 MHz	868.2875 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
796				
797	823.3000 MHz	868.3000 MHz	Phoenix, Mesa Note 3	
798				
799	823.3125 MHz	868.3125 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
800				
801	823.3250 MHz	868.3250 MHz	Phoenix, Mesa Note 3	
802				
803	823.3375 MHz	868.3375 MHz	Phoenix, Mesa Note 3	Apache
804				
805	823.3500 MHz	868.3500 MHz	Phoenix, Mesa Note 3	
806				
807	823.3625 MHz	868.3625 MHz	Phoenix, Mesa Note 3	Coconino

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781	823.3750 MHz	868.3750 MHz	Phoenix, Mesa Note 3	Tucson
782				
783	823.4000 MHz	868.4000 MHz	Phoenix, Mesa Note 3	Navajo
784				
785	823.4250 MHz	868.4250 MHz	Phoenix, Mesa Note 3	Tucson, Douglas
786				
787	823.4500 MHz	868.4500 MHz	Phoenix, Mesa Note 2, 3	Tucson, Pima Co.
788				
789	823.4750 MHz	868.4750 MHz	Phoenix, Mesa Note 3	
790				
791	823.5000 MHz	868.5000 MHz	Phoenix, Mesa Note 3	Cochise
792				
793	823.5250 MHz	868.5250 MHz	Phoenix, Mesa Note 3	Florence
794				
795	823.5500 MHz	868.5500 MHz	Guard Band	
796				
797	823.5750 MHz	868.5750 MHz	Guard Band	
798				
799	823.6000 MHz	868.6000 MHz	CAP	CAP
800				
801	823.6250 MHz	868.6250 MHz	Phoenix, Mesa Note 3	Tucson
802				
803	823.6500 MHz	868.6500 MHz	Phoenix, Mesa Note 3	Tucson, Douglas, Yuma City
804				
805	823.6750 MHz	868.6750 MHz	Phoenix, Mesa Note 3	Tucson, Douglas, Flagstaff, Yuma City
806				
807	823.7000 MHz	868.7000 MHz	Phoenix, Mesa Note 3	Navajo
808				
809	823.7250 MHz	868.7250 MHz	Phoenix, Mesa Note 3	Tucson, Pima Co.
810				
811	823.7500 MHz	868.7500 MHz	Guard Band	
812				
813	823.7750 MHz	868.7750 MHz	Maricopa Co.	Mohave
814				
815	823.8000 MHz	868.8000 MHz	Maricopa Co.	Tucson, Pima Co.
816				
817	823.8250 MHz	868.8250 MHz	Maricopa Co.	Cochise
818				
819	823.8500 MHz	868.8500 MHz	Maricopa Co.	Tucson
820				
821	823.8750 MHz	868.8750 MHz	Maricopa Co.	Tucson, Yuma City
822				
823	823.9000 MHz	868.9000 MHz	Maricopa Co.	Tucson, Douglas, Yuma City
824				
825	823.9250 MHz	868.9250 MHz	Maricopa Co.	Sierra Vista Tucson, Douglas, Flagstaff, Lake Havasu, Nogales, Greenlee

827	823.9500 MHz	868.9500 MHz	Maricopa Co.	
829	823.9750 MHz	868.9750 MHz	State of Arizona	State of Arizona

Notes:

Note 1: These channels will require specific coordination with the State of Arizona.

Note 2: Channels 624, 647, 767, 787, and 808 were allocated to Scottsdale. Their 5 channels are incorporated in the allocations for Maricopa County by an agreement with Maricopa County.

Note 3: The proposed Phoenix/Mesa allocation is to be considered a design pool which includes the existing Phoenix MDT system and the new P25 trunked radio network. The participants in the P25 trunked radio network will include (but is not limited to): Phoenix, Mesa, Glendale, Peoria, Tempe, Goodyear, Apache Junction, Gilbert, Salt River, Gila River, Avondale, El Mirage, Guadalupe, Laveen, Daisy Mtn., Surprise, Tolleson, The Sun Cities, Sun Lakes, and Buckeye.

Allocated Channels by User

PHOENIX/MESA

670	671	672	673	674	675	676	678	679	680	681	682
683	684	685	686	687	688	689	690	691	692	693	694
695	696	697	698	699	700	701	702	703	704	705	706
707	708	709	710	711	712	720	721	722	723	724	725
726	727	728	729	730	731	732	733	734	735	736	737
738	739	740	741	742	743	744	745	746	747	748	749
750	751	752	754	755	756	757	758	762	763	764	765
766	767	768	769	770	771	772	773	774	775	776	777
778	779	780	781	782	783	784	785	786	787	788	789
790	791	792	793	794	801	802	803	804	805	806	807
808	809	810									

TUCSON

605	610	612	614	616	618	624	634	642	644	646	651
662	666	671	673	683	685	691	693	703	705	711	741
743	747	763	765	767	774	776	781	785	787	794	801
803	805	808	810	814	819	821	823	825			

DOUGLAS

606	608	626	628	648	785	803	805	823	825		
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FLAGSTAFF

606	805	825									
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LAKE HAVASU

613	646	798	825								
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NOGALES

606	825										
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PRESCOTT

610	635										
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SIERRA VISTA

608 824

YUMA CITY

610 803 805 821 823

FLORENCE

793 802

SANTA CRUZ

613

GREENLEE

620 825

APACHE

622 649 778 798 818

NAVAJO

608 628 651 783 806

GRAHAM

653

MOHAVE

643 655 750 773 812

LA PAZ

665 748

COCHISE

611 650 771 791 817

COCONINO

612 645 780

YAVAPAI

685

MARICOPA COUNTY

604	605	609	610	611	612	613	614	615	616	617	618
619	620	621	622	623	624	625	626	627	628	634	635
636	642	643	644	645	646	647	648	6449	650	651	652
653	654	655	656	657	658	659	660	661	662	663	664
665	666	812	813	814	815	816	817	818	819	820	821
822	823	824	825	826	827						

PIMA

605	610	624	651	671	673	683	685	691	693	703	705
711	741	743	747	763	765	767	774	776	787	808	810
814											

CAWCD (CAP)

607 630 632 668 718 760 796 799

STATE OF ARIZONA

637 638 640 713 714 716 829

NOT ASSIGNABLE

603 641 717 828 830

APPENDIX V - PROCEDURE FOR DETERMINING SERVICE AREA

RECOMMENDED PROCEDURE FOR DETERMINING SERVICE AREA

1. Convert proposed BASE STATION power ERP to dB below 1 kW ERP.
2. Subtract value in step 1 from 41 dBu.
3. In look-up table 1 determine the two- (2) height columns that correspond most closely to proposed BASE STATION H.A.A.T.
4. Interpolate between the listings under the two- (2) columns to determine where the value in step 2 falls.
5. Read the mileage from the "MILES" column. This is the radius of the proposed service area.

EXAMPLE

The service area of a 100-watt ERP station with an antenna height above average terrain of 450 feet would be calculated as follows:

$$\begin{aligned} P \text{ (dBk)} &= 10 \times \log (100) - 30 \\ &= 10 \times 2 - 30 \\ &= -10 \end{aligned}$$

$$\begin{aligned} F \text{ (dBu)} &= 41 - (-10) \\ &= 51 \text{ dBu} \end{aligned}$$

From the look-up tables, 51 falls between 50.5 in the 400 ft. column and 52.9 in the 500 ft. column. The corresponding mileage would be 12.

INTERFERENCE PROTECTION

1. Convert proposed BASE STATION ERP to dB below 1 kW ERP.
2. Subtract value in step 1 from 16 dBu.
3. In look-up table 2 determine the two (2) height columns that correspond most closely to the proposed BASE STATION H.A.A.T.
4. Interpolate between the listings under the two- (2) columns to determine where the value in step 2 falls.

5. Read the mileage from the column "MILES". This value is the minimum distance between the proposed BASE STATION and the nearest point of another co-channel service area. (Service area may be obtained from the co-channel user or by calculations used in "PROCEDURE FOR DETERMINING SERVICE AREA".)

ADJACENT CHANNEL INTERFERENCE PROTECTION

1. Convert proposed BASE STATION ERP to dB below 1 kW ERP.
2. Subtract value in step 1 from 26 dBu.
3. In look-up table 2 determine the two (2) height columns that correspond most closely to the proposed BASE STATION H.A.A.T.
4. Interpolate between the two listings to determine where the value in step 2 falls.
5. Read the mileage from the "MILES" column. This value is the minimum distance between the proposed BASE STATION and the nearest point of the adjacent channel service area.

LOOK UP TABLE 1

UHF F(50,50)		dBu/kW ERP								
MILES	100'	200'	300'	400'	500'	600'	700'	800'	900'	1000'
5	60.8	66.0	68.3	70.6	72.9	74.1	75.3	76.6	77.8	79.0
6	56.9	61.7	64.0	66.4	68.7	69.9	71.1	72.2	73.4	74.6
7	53.4	58.2	60.5	62.8	65.1	66.3	67.5	68.6	69.8	71.0
8	50.2	55.1	57.4	59.7	62.0	63.2	64.4	65.6	66.8	68.0
9	47.4	52.4	54.7	57.1	59.4	60.9	61.8	63.0	64.2	65.4
10	44.8	49.9	52.3	54.6	57.0	58.2	59.4	60.7	61.9	63.1
11	42.4	47.7	50.1	52.5	54.9	56.1	57.3	58.5	59.7	60.9
12	40.2	45.6	48.0	50.5	52.9	54.1	55.3	56.6	57.8	59.0
13	38.2	43.7	46.2	48.6	51.1	52.3	53.5	54.8	56.0	57.2
14	36.2	41.9	44.4	47.0	49.5	50.7	51.9	53.0	54.2	55.4
15	34.6	40.1	42.7	45.3	47.9	49.1	50.3	51.4	52.6	53.8
16	33.0	38.5	41.1	43.7	46.3	47.5	48.7	49.8	51.0	52.2
17	31.5	37.0	39.6	42.3	44.9	46.1	47.2	48.4	49.5	50.7
18	30.0	35.6	38.2	40.9	43.5	44.6	45.8	46.9	48.1	49.2
19	28.7	34.3	36.9	39.5	42.1	43.3	44.4	45.6	46.7	47.9
20	27.5	33.0	35.6	38.2	40.8	41.9	43.1	44.2	45.4	46.5
21	26.4	31.7	34.3	36.9	39.5	40.7	41.8	43.0	44.1	45.3
22	25.3	30.6	33.2	35.7	38.3	39.5	40.6	41.8	42.9	44.1
23	24.3	29.5	32.0	34.6	37.1	38.3	39.4	40.6	41.7	42.9
24	23.3	28.4	30.9	33.4	35.9	37.1	38.3	39.4	40.6	41.8
25	22.4	27.4	29.9	32.3	34.8	36.0	37.2	38.3	39.5	40.7
26	21.5	26.4	28.9	31.3	33.8	35.0	36.2	37.3	38.5	39.7
27	20.7	25.4	27.8	30.3	32.7	33.9	35.1	36.3	37.5	38.7
28	19.9	24.5	26.9	29.3	31.7	32.9	34.1	35.3	36.5	37.7
29	19.1	23.6	26.0	28.3	30.7	31.9	33.1	34.4	35.6	36.8
30	18.4	22.7	25.1	27.4	29.8	31.0	32.2	33.5	34.7	35.9

REFERENCE:

BASE ON 50% OF THE SIGNALS FALLING INTO THE CHARTED SIGNAL LEVELS 50% OF THE TIME AT THE DISTANCES LISTED.

HARMFUL INTERFERENCE - LOOK UP TABLE II

MILES	UHF F (50,10)					dBu/KW ERP				
	100'	200'	300'	400'	500'	600'	700'	800'	900'	1000'
10	43.8	50.1	52.5	54.9	57.4	58.6	59.8	61.0	62.2	63.3
11	41.7	47.6	50.1	52.5	54.9	56.2	57.5	58.7	60.0	61.2
12	39.6	45.8	48.4	51.0	53.6	54.7	55.8	56.9	58.0	59.2
13	37.4	43.4	46.2	49.0	51.8	52.9	54.0	55.2	56.3	57.4
14	35.7	42.0	44.7	47.4	50.1	51.2	52.4	53.6	54.8	56.0
15	33.9	40.3	42.8	45.4	47.9	49.2	50.5	51.7	53.0	54.3
16	32.2	38.5	41.2	43.9	46.6	47.7	48.9	50.1	51.3	52.5
17	31.2	37.1	39.8	42.5	45.2	46.3	47.5	48.7	49.9	51.1
18	29.7	35.7	38.3	40.8	43.4	44.7	46.1	47.4	48.7	50.1
19	28.7	34.7	37.2	39.8	42.3	43.6	44.9	46.1	47.4	48.7
20	27.7	33.3	35.7	38.2	40.6	41.9	43.3	44.6	45.9	47.3
21	27.0	32.2	34.5	36.9	39.2	40.5	41.9	43.2	44.5	45.8
22	25.9	30.8	33.3	35.7	38.2	39.4	40.7	41.9	43.2	44.4
23	25.2	29.7	32.1	34.4	36.8	38.1	39.4	40.7	42.1	43.4
24	24.5	29.0	31.3	33.5	35.7	37.0	38.4	39.7	41.0	42.3
25	23.8	28.0	30.2	32.4	34.7	36.0	37.3	38.6	40.0	41.3
26	23.1	27.3	29.4	31.5	33.6	34.9	36.3	37.6	38.9	40.3
27	22.4	26.3	28.5	30.7	32.9	34.2	35.4	36.7	37.9	39.2
28	21.7	25.5	27.5	29.5	31.5	32.8	34.2	35.5	36.8	38.2
29	21.0	24.8	26.8	28.8	30.8	32.1	33.3	34.6	35.8	37.1
30	20.3	24.2	26.0	27.9	29.7	31.0	32.3	33.5	34.8	36.1
31	19.6	23.5	25.3	27.2	29.0	30.3	31.6	32.8	34.1	35.3
32	19.1	22.8	24.6	26.5	28.3	29.5	30.7	31.9	33.1	34.1
33	18.5	22.6	24.3	26.0	27.7	28.8	29.9	31.0	32.1	33.3
34	18.0	21.7	23.5	25.2	27.0	28.1	29.2	30.3	31.4	32.6
35	17.5	21.2	22.9	24.6	26.3	27.4	28.5	29.6	30.7	31.8
36	17.2	20.7	22.3	23.9	25.5	26.7	27.8	28.9	30.0	31.2
37	16.8	20.3	21.9	23.6	25.2	26.3	27.3	28.3	29.4	30.5
38	16.5	19.6	21.2	22.9	24.5	25.6	26.6	27.7	28.7	29.7
39	16.1	19.3	20.7	22.0	23.5	24.5	25.6	26.6	27.7	28.7
40	15.7	18.9	20.3	21.7	23.1	24.2	25.2	26.2	27.3	28.3
41	15.4	18.2	19.7	21.2	22.8	23.7	24.7	25.7	26.7	27.7
42	15.0	17.8	19.3	20.7	22.0	23.0	24.0	25.0	26.0	27.0
43	14.7	17.5	18.9	20.3	21.7	22.6	23.5	24.4	25.3	26.3

HARMFUL INTERFERENCE - LOOK UP TABLE II (Cont.)

MILES	100'	200'	300'	400'	500'	600'	700'	800'	900'	1000'
44	14.4	17.2	18.4	19.7	21.0	21.9	22.8	23.7	24.6	25.5
45	14.0	16.8	18.1	19.4	20.7	21.6	22.5	23.4	24.3	25.2
46	13.6	16.1	17.4	18.7	20.0	20.9	21.8	22.7	23.6	24.5
47	13.3	15.4	16.6	17.7	18.9	19.8	20.7	21.6	22.5	23.5
48	13.0	15.4	16.6	17.7	18.9	19.8	20.7	21.6	22.5	23.5
49	12.6	15.0	16.3	17.5	18.7	19.5	20.3	21.1	21.9	22.8
50	12.3	14.7	15.9	17.0	18.2	19.0	19.9	20.7	21.6	22.4
51	11.9	14.4	15.5	16.7	17.8	18.6	19.4	20.2	20.9	21.7
52	11.5	14.0	15.0	16.1	17.2	18.0	18.8	19.7	20.5	21.3
53	11.2	13.5	14.6	15.7	16.8	17.6	18.5	19.3	20.2	21.0
54	10.9	13.0	14.1	15.3	16.5	17.2	18.0	18.8	19.5	20.3
55	10.5	12.6	13.6	14.7	15.7	16.6	17.4	18.3	19.1	20.0
56	10.1	12.4	13.4	14.4	15.4	16.2	17.0	17.8	18.6	19.4
57	9.8	11.9	13.0	14.0	15.0	15.8	16.6	17.4	18.1	18.9
58	9.5	11.5	12.6	13.6	14.7	15.5	16.2	17.0	17.8	18.5
59	9.1	11.2	12.3	13.3	14.4	15.1	15.9	16.7	17.4	18.2
60	8.8	10.9	11.9	13.0	14.0	14.8	15.5	16.3	17.1	17.8
61	8.4	10.5	11.4	12.4	13.3	14.1	14.8	15.6	16.4	17.2
62	8.0	10.1	11.1	12.0	13.0	13.6	14.4	15.0	15.8	16.5
63	7.7	9.8	10.7	11.7	12.6	13.3	14.0	14.7	15.4	16.1
64	7.4	9.5	10.4	11.3	12.3	13.0	13.6	14.4	15.0	15.7
65	7.0	9.1	10.0	11.0	11.9	12.6	13.3	14.0	14.7	15.4
66	6.6	8.8	9.7	10.6	11.5	12.2	13.0	13.6	14.4	15.0
67	6.3	8.4	9.3	10.3	11.2	11.9	12.6	13.3	14.0	14.7
68	5.9	8.0	9.0	9.9	10.9	11.5	12.3	13.0	13.7	14.4
69	5.6	7.7	8.6	9.6	10.5	11.2	11.9	12.6	13.3	14.0
70	5.3	7.4	8.3	9.2	10.1	10.8	11.5	12.2	13.0	13.6

REFERENCE:

BASE ON 50% OF THE SIGNALS FALLING INTO THE CHARTED SIGNAL LEVELS 10% OF THE TIME AT THE DISTANCES LISTED.

APPENDIX VI - ADJACENT REGION CONCURRENCE

(Copies of concurrence letters are available through the ARRC)

APPENDIX VII - CELLULAR NOTIFICATIONS

(Copies of concurrence letters are available through the ARRC)

APPENDIX VIII - INTERAGENCY RADIO SYSTEM PLAN

ARIZONA PUBLIC SAFETY STATEWIDE NETWORK INTER-AGENCY RADIO SYSTEM STATE PLAN

January 1996

A. PURPOSE

The Arizona Inter-Agency Radio System (IARS) is designed to provide a supplemental communications capability to police, and other personnel of municipal, county, state, or federal agencies performing public safety activities. The system assists agencies requiring a radio contact with another agency's unit concerning a public safety activity in which the nature of the emergency or activity dictates that the use of regular radio channels would not adequately provide the communications capability necessary to successfully complete the operation. Matters relating to life threatening situations will have priority in the use of this system. Agencies participating in IARS shall render a communications service to itinerant law enforcement vehicles and other public safety users having emergency communications needs. This system operates on designated Police Channel frequencies.

The Arizona Chapter of the Associated Public Safety Communications Officials (A.P.C.O.) shall serve as the state plan governing entity.

B. ELIGIBILITY FOR PARTICIPATION

1. Public Safety Emergency response agencies, utilizing mobile and portable two-way radios, operated by personnel actively engaged in these related activities, are eligible to apply for operating authority.
2. Requests for permission to utilize the frequency shall be submitted in writing to the AZ APCO IARS Committee. Only police agencies are permitted to license and operate base/mobile relay stations on the IARS frequency.
3. Non-police public safety agencies may also apply to the AZ APCO IARS committee for operating permission. The application shall include justification for use of the frequency and a letter from a sponsoring police agency, that is authorizing the applicant to operate under that (sponsoring) agency's police mobile license.
4. Each participating police agency shall be responsible for maintaining the mobile radio FCC license for operation on the appropriate IARS frequency. Each sponsoring police agency also shall maintain current records of other public safety agencies authorized to operate under that sponsoring agency's FCC mobile license.

5. By federal statute, Federal agencies are required to obtain permission to use the IARS frequencies through the National Telecommunication and Information Administration, unless a supporting agency provides all the mobile radios for the federal agency's use.
6. In any instance where eligibility is questioned, the AZ APCO IARS Committee shall make the final determination.

C. TERMINATION

1. Any participant desiring to withdraw from the IARS operation is requested to notify the AZ APCO IARS Committee.
2. The expiration of the participant's FCC license for the frequency will automatically revoke operating permission.
3. Any negligent, willful, or continued misuse of the emergency frequency will result in a recommendation from the AZ APCO IARS Committee for revocation of the operating authority granted by the FCC, or the sponsoring police agency.

D. DEFINITIONS

AZ APCO	AZ Chapter of the Associated Public-Safety Communications Officials, Inc.
CTCSS	Continuous Tone Coded Sub-audible Squelch: PL, CG, Etc.
FCC	Federal Communications Commission
IARS	Inter-Agency Radio System
IARS UHF	Mobile receive 460.375 MHz 100 Hz currently supported. Mobile transmit 465.375 MHz 100 Hz currently supported. This police frequency chosen in Arizona for system use. ** CTCSS requirements see below.
IARS VHF	Mobile receive 155.475 MHz no PL required. Mobile transmit 155.475 MHz no PL required ** This frequency is designated by the FCC as the National Police Emergency Channel.

Version 3. May, 2001

**** CTCSS will be added to protect base stations from interference. A tone frequency of 156.7 Hz (as used in the 800 MHz national plan) is the currently chosen tone frequency for VHF, the UHF channel will continue to utilize the current 100 Hz tone frequency. A second CTCSS tone may be added for system/site selection. Mobiles will be required to transmit the CTCSS but will operate carrier squelch on receive. VHF base stations will then no longer transmit a CTCSS to protect other base stations from interference.**

Simplex: Transmit and receive on the same frequency, i.e., 155.475 MHz.

Duplex: Allow for repeater operation, i.e., 465.375/460.375 MHz.

Operation

Control: Mobile unit requesting interagency radio operation.

Sponsoring

Agency: A police agency which authorizes another public safety agency to operate under their FCC police mobile radio license for the purposes of emergency communications on the IARS channels.

Support

Control: Designated agency controlling a system base/mobile relay station. Usually the County's Sheriffs Office, or, in special cases, the largest participating law enforcement agency in the area.

Base

Station: A fixed station, which communicates with mobile units on IARS, channels, usually with high power and high elevation for wide area coverage.

Mobile

Relay

Station: A base station authorized to retransmit automatically on the IARS channels.

Control

Station: A fixed station whose transmissions are used to control the emissions or operation of an IARS base/mobile relay station.

E. MONITORING

Each support control agency shall monitor the IARS channel(s) at all times. The

monitoring system should have a range comparable to that of the agency's own mobile-to-base radio receiver.

F. DISCIPLINE

In order to assure the availability of the channel in times of emergency, strict discipline **MUST BE MAINTAINED**. This can be accomplished by: 1) good operating procedures, and 2) adherence to FCC rules and the rules of the IARS Committee as herein stated or hereafter amended.

G. CHANNEL USE

1. Channel Use Priorities

The established priority use levels for the system are described below. When a higher priority of use is required, all lower priority use must cease in ANY area where interference could occur.

The four priority levels are:

- | | |
|--------------------|---|
| PRIORITY 1: | Disaster and extreme emergency operations of large scale; for mutual aid and interagency communications. |
| PRIORITY 2: | Emergency or urgent operations involving imminent safety of life or property. |
| PRIORITY 3: | Special event control activities, generally of a pre-planned nature, and generally involving joint participation of two or more agencies. |
| PRIORITY 4: | Drill, maintenance, and test exercises of a civil defense or disaster nature. |

2. SUMMARY

Generally, any action requiring **emergency** communications coordination between mobile units that the individual agency's regular radio facilities could not adequately provide is acceptable traffic. **SELF-DISCIPLINE AND SELF-POLICING BY THE PARTICIPANTS SHOULD SUFFICIENTLY CONTROL THE SYSTEM SO THAT IT WILL BE AVAILABLE IN TIMES OF EMERGENCY.**

3. CALLING/NOTIFICATION PROCEDURES

- a. The call-up message should contain sufficient information to enable the monitoring unit or agency, that is in the best position to provide assistance, to respond.
- b. Use plain language on the IARS channel(s).
- c. If a response is not immediately received to the initial call, repeat the message. This would allow a monitoring agency to alert one of its units that may be in a near-by location. Also, if the call-up were by an itinerant reporting an accident, or other incident requiring action by the local agency, the monitoring agency would dispatch the necessary assistance.
- d. Methods of notification and coordination between agencies may be accomplished by the use of any of the following methods:
 - I. Direct telephone "hotline" between agencies.
 - II. Public Telephone Switched Network.
 - III. Arizona Law Enforcement Telecommunications System.

Under normal conditions, the unit initiating the request for interagency assistance shall assume operational control at the scene, and the local support control agency shall assume support control. Should the initial unit become unable to continue operational control, the control will then pass to the support control agency that will designate the new operational control unit.
- e. When all communications relative to the particular operation have been completed, the station call sign and time of day shall be announced. This identifies the licensee, as required by FCC rules, and also indicates end of transmission.

APPENDIX A

OPERATIONAL GUIDELINES

FREQUENCIES

IARS operates on VHF, 155.475 MHz, as designated by the FCC as the Nationwide Police Emergency frequency. UHF operation is on 460.375/465.375 MHz, the frequency pair designated by the AZ IARS Committee and the Arizona APCO Frequency Advisory Committee, and licensed by FCC, assigned in Arizona for that use.

Most of the transmitter sites have the provision to cross-patch the VHF and UHF radios for cross-band operation. The UHF mobile relay station also supports car-to-car repeat through the selected site. In general, this crosspatch and repeat function is automatic upon receipt of a signal from a mobile or control station. Operation on VHF and UHF is complemented by the Inter-Agency channel operation designated in the Arizona Regional 800 MHz Plan. Agencies with 800 MHz systems may support cross-band operation through console crosspatch options.

OPERATIONS

A mobile unit calling with emergency traffic should use one of the following sequence examples. NOTE: All broadcasts will be in plain language only. (No Ten-code etc, i.e. DCSO is CODE 10-23?).

- a. Mobile-to-mobile: Any M.C.S.O. unit, El Mirage 4, in pursuit northbound on U.S. 60, approaching the Morristown overpass, armed robbery suspects, white over blue '75 Chevy, 3 occupants, shots fired.
- b. Mobile-to-base station: M.C.S.O. radio, Buckeye 12 (wait for acknowledgment) 2-vehicle accident with injuries, need DPS, an ambulance and traffic control.
- c. Mobile-to-base station: Roswell, New Mexico PD 6, (wait for acknowledgment), we are westbound on I-10 at the county line, en route to M.C.S.O. jail with three prisoners, will advise when clear.

APPENDIX B

OPERATIONAL FACILITIES
April 1993

COUNTY	SITE	MONITORED BY	COMMENTS
Apache	Greens Peak	Navajo S.O.	
Cochise	Mule Mtn.	Cochise S.O.	backup at Tucson DPS
Coconino	Mt. Elden Bill Williams Mtn.	Coconino S.O. Coconino S.O.	
Gila	none		
Graham	Heliograph Peak		backup at UofA P.D.
Greenlee	Guthrie Peak		backup at Tucson DPS
La Paz	none		
Maricopa	South Mountain White Tanks Mtn Thompson Peak Towers Mtn	Maricopa S.O. Maricopa S.O. Maricopa S.O. Maricopa S.O.	part of MCSO system part of MCSO system part of MCSO system part of MCSO system
Mohave	Hualapai Mtn	Mohave S.O.	
Navajo	Greens Peak	Navajo S.O.	
Pima	none		
Pinal	none		
Santa Cruz	Nogales Hill	Santa Cruz S.O.	backup at Tucson DPS
Yavapai	Towers Mtn	Maricopa S.O.	part of MCSO system
Yuma	Telegraph Pass Oatman Mtn. Childs Mtn.	Yuma S.O. Yuma S.O. Yuma S.O.	